polymorphism at the *Sp*1 site of the collagen Iα1 gene, wherein detection of said polymorphism is indicative of an increased susceptibility to bone fracture.

6. (Three Times Amended) A method of determining susceptibility to bone fracture according to claim 2 said method further comprising determining the copy number of the b, a or T alleles of the vitamin D receptor gene and/or the s allele of the collagen Iα1 gene.

8. A method according to claim 6 comprising comparing the allele(s) present in the genetic material of the subject with genotypes of the vitamin D receptor or collagen Iα1 genes having known degrees of risk of bone fracture.

9. (Twice Amended) A method according to claim 4, further comprising determining calcium levels in a subject.

10. A method according to claim 9 wherein daily calcium intake is measured.

11. (Twice Amended) A method according to claim 2, wherein said method is performed *in vitro*.

12. A method according to claim 11, wherein said method is performed on blood, or tissue samples of a subject.

13. (Three Times Amended) A method of treating a subject to reduce the risk of bone fracture comprising analysing genetic material of a subject to determine the presence of the baT haplotype of the vitamin D receptor gene, wherein the presence of the baT haplotype is indicative of an increased susceptibility to bone fracture, and treating the subject to reduce the risk of bone fracture if the subject has the baT haplotype.

14. A method according to claim 13, wherein suitable treatments include modifications to lifestyle, regular exercise, changes in diet or pharmaceutical preparations.

15. (Twice Amended) A method according to claim 2, wherein the subject is a mammal.

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16. A method according to claim 15, wherein the subject is a human.

17. A method according to claim 15 or 16, wherein the subject is a female.

18. A method of formulating a treatment regimen to decrease the risk of bone fracture, said method comprising analysing genetic material of a subject to determine the presence of the baT haplotype of the vitamin D receptor gene, wherein said haplotype is associated with risk of bone fracture, and formulating a treatment regimen to decrease the risk of bone fracture based on said haplotype.

19. (Twice Amended) A method according to claim 18, further comprising determining the presence of a G to T polymorphism at the Sp1 site of the collagen Iα1 gene.

21. A method according to claims 18 or 19 further comprising administering the appropriate treatment.

22. A method of determining susceptibility to bone fracture in a subject comprising the step of utilizing a kit to determine whether the baT haplotype of the vitamin D receptor gene is present in a subject, wherein said kit comprises (i) one or more nucleic acid primer molecules for amplification of a portion of the vitamin D receptor gene, and (ii) means for determining whether the baT haplotype of said gene is present, and wherein presence of the baT haplotype in the subject is indicative of susceptibility to bone fracture.

23. (Twice Amended) The method according to claim 22 further comprising the step of determining whether the s allele of a collagen Iα1 gene is present in the subject, said kit further comprising (i) one or more nucleic acid primer molecules for amplification of a portion of the collagen Iα1 gene and (ii) means for determining whether the s allele of the collagen Iα1 gene is present.

24. A kit for determining susceptibility to bone fracture in a subject, said kit comprising (i) one or more nucleic acid primer molecules for amplification of a portion of the

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vitamin D receptor gene, (ii) means for determining whether the baT haplotype of said gene is present; and (iii) means for indicating correlation between the presence of said haplotype and risk of bone fracture.

25. (Twice Amended) A kit according to claim 24, said kit further comprising (i) one or more nucleic acid primer molecules for amplification of a portion of the collagen Iα1 gene and (ii) means for determining whether the s allele of the collagen Iα1 gene is present.

28. A method according to claim 2, wherein the haplotype is determined by amplification of a portion of the vitamin D receptor gene between exon 7 and the 3' UTR, followed by restriction enzyme digestion; or any other technique suitable for determining the genotype of a subject.

30. A method according to claim 4, wherein the haplotype is determined by amplification of a portion of the vitamin D receptor gene between exon 7 and the 3' UTR, or amplification of the first intron of the collagen Iα1 gene, followed by restriction enzyme digestion; or any other technique suitable for determining the genotype of a subject.

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